Cambridge Assessment International Education

Cambridge International AS & A Level

INFORMATION TECHNOLOGY **9626/04**

Paper 4 Advanced Practical **October/November 2020**

MARK SCHEME

Maximum Mark: 110

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the October/November 2020 series for most Cambridge IGCSE™, Cambridge International A and AS Level and Cambridge Pre-U components, and some Cambridge O Level components.

[Turn over

Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently, e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

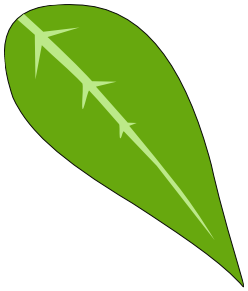
GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Task 1

Extract the 4 leaf cluster	***Create a vector drawing of the leaf***
	

4 leaf cluster clearly extracted		1
1 smooth unbroken side	With no shadow / ghosts and nothing behind	1
2 smooth unbroken sides		1
3 smooth unbroken sides		1
4 smooth unbroken sides		1
5 smooth unbroken sides		1
6 smooth unbroken sides		1
7 smooth unbroken sides		1
All (8) sides smooth unbroken nothing else to be seen		1
Central bud clear	If sufficient background cut out	1
Colour preserved		1
Resolution preserved		1
Transparent background		1

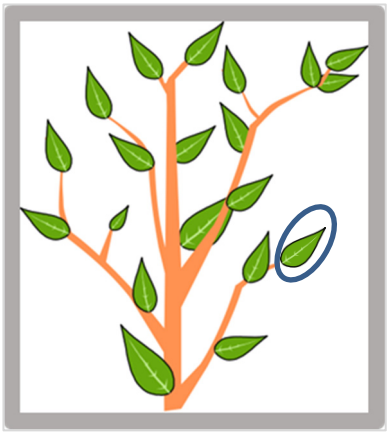
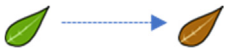
Non-Traced Vector graphics image of single leaf created	1
Vector version saved as svg	1
Non-Traced Bitmap version saved sized 50 px W or H	1
Simple even curves tear-drop shape – fat bottom – sharp tip	1
Colour matched	1
Central vein single smooth line	1
Central vein lighter colour	1
Central vein length **edge** to tip or 3/4 – not extended	1
Central vein tapers	1
Central vein has 2 or 3 light coloured barbs **...** allow 4th	1
... Central vein barbs correct shape 2 paired – all upwards	1
... Central vein barbs correct size reducing	1
... Central vein barbs correct position within 1st 3/4	1

Use leaf image and Branches file to match

Can mark from an animation

Branches image used and populated named Shrub – allow misspelling	1
⩾3 **clearly** different sized leaves	1
⩾3 leaves in **clearly** different orientations	1
At least 2 leaves behind branches	1
Lower right branch tip clear (in Shrub image)	1
Leaves on left branches correct positions and orientation	1
Leaves on central stem correct positions and orientation	1
Leaves on right branches correct positions and orientation	1
Transparent Bitmap Saved with size 400 × 400 1 px tolerance	1

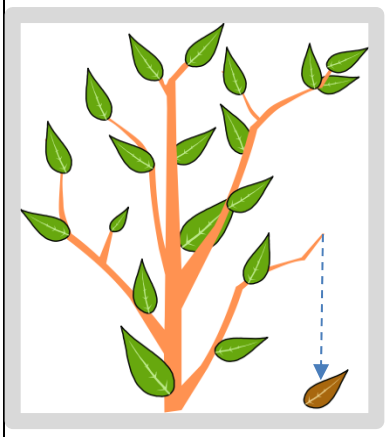
Task 2 – **Animation**

Set frame 400 px by 400 px ***Insert leaf bitmap***	***Animate leaf*** ***Turn green to brown***
	 Must change colour before falling unless it changes whilst falling or takes 1 sec at bottom

Frame size 400 × 400 Must play	1
New (Their/populated) Shrub image inserted	1
Image fits frame Consistent background, no clipping, all visible	1
Their green Leaf image present on lower right branch	1
Leaf image inserted in correct position reaches very near the elbow	1
Leaf image inserted with correct orientation	1

Leaf changes colour **in stages** before falling	1
Changes from green to brown, allow mottled	1
Central vein changes colour	1
Central vein changes to yellow-brown	1
Change takes 1 second	1
… Size does not change during animation	1
… Shape is preserved	1

Animate brown leaf to fall to the bottom of the frame



Animation of leaf **falling** not jumping	1
Descent is smooth	1
… Descent is vertical only	1
Descent takes 1 second	1
Leaf stops at bottom of the frame**/tree** does not leave frame	1
… Animation does not loop	1
Animation saved as .gif or .swf and must animate	1

Task 3 – **Database**

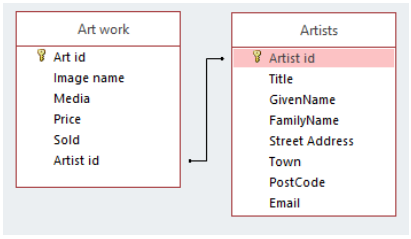
Create a relational database using the ArtWork.csv and Artists.csv files.

Art work

Field Name	Data Type
Art id	Number
Image name	Short Text
Media	Short Text
Price	Currency
Sold	Yes/No
Artist id	Number

Artists

Field Name	Data Type
Artist id	Number
Title	Short Text
GivenName	Short Text
FamilyName	Short Text
Street Address	Short Text
Town	Short Text
PostCode	Short Text
Email	Short Text



ArtWork data correctly imported Record: 1 of 692	1
Art id created as primary key	1
Price = currency	1
Sold = Y/N – boolean	1

Artists data correctly imported Record: 1 of 436	1
Artist id created as primary key	1

Relationship created on Artist id	1

Generate data for the form

Sold	Commission: IIf([Price]<50,[Price]*0.05,IIf([Price]>100,[Price]*0.125,[Price]*0.1))
Art work	
☑	☑
Yes	

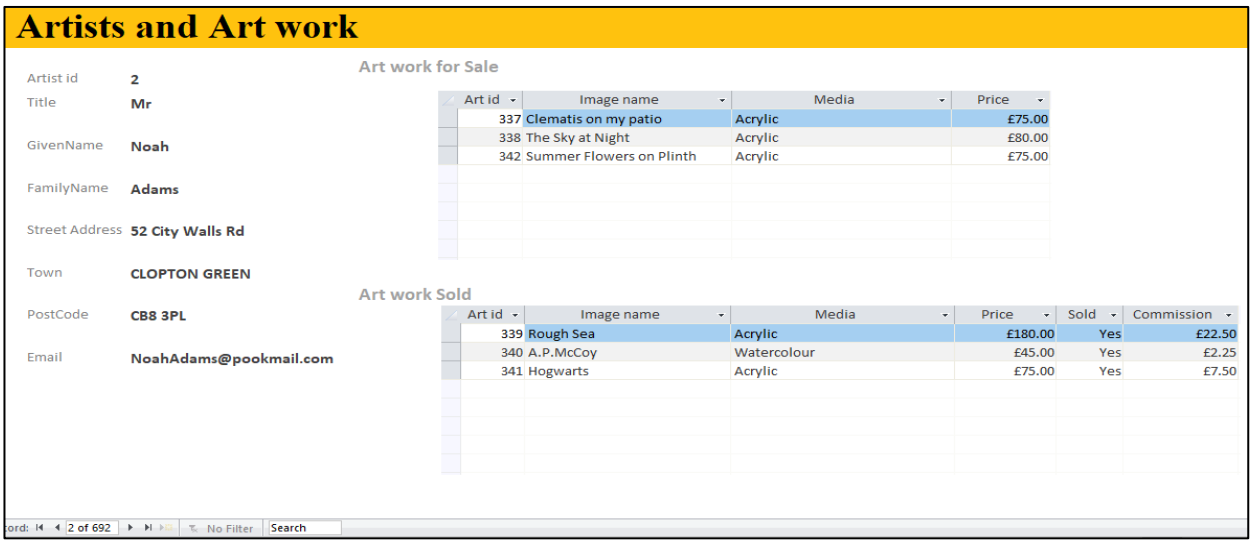
Sold
Art work
☑
No

Art **sold** query – sold criterion =yes,TRUE,–1	1
Art sold results correct seen in query or table **15 records**	1
Commission field added	1
IIF operator used	1
IIF criteria correct <50 >100 ⩽100	1
Correct Commission Values seen in query or table	1

Can mark if **calculation** seen in form or table

Art Unsold query created	1
Correct criterion	1

Create a form to display the data



Form created	1
Title in serif font	1
Title text correct	1
Title colour correct	1

Artist fields correct	1
Artist fields correctly aligned	1

Artwork for Sale label correct	1
Artwork for Sale subform shown	1
Subform fields correct	1
Subform fields layout correct	1
Subform fields correct size	1

Artwork Sold label correct	1
Artwork Sold subform shown	1
Subform fields correct	1
Subform fields layout correct	1
Subform fields correct size	1

No scroll bars	1
No navigation bars in subforms	1
Navigation bar in main form	1

Data entry disabled	1

Task 4 – **JavaScript**

Insert JavaScript code to calculate commission.

50/100 – £30 entered = £1.5 displayed	1
50/100 – £50 entered = £5 displayed	1
50/100 – £100 entered = £10 displayed	1
50/100 – £120 entered = £15 displayed	1

100/400 – £60 entered = £3 displayed	1
100/400 – £100 entered = £10 displayed	1
100/400 – £300 entered = £30 displayed	1
100/400 – £400 entered = £40 displayed	1
100/400 – £600 entered = £75 displayed	1
Commission text displayed in position as shown in the question paper	1

```
<button type="button" onClick="Calculate()">Display Commission</button>
<br><!-- Placeholder for display inserted here -->
<h3 id="display here"></h3>
<SCRIPT>
//Function is code to run when button is clicked
function Calculate()
{
var low=LowerRange.value*1; //*1 to make variable numeric
var upper=UpperRange.value*1;
var price=ArtPrice.value*1;
var commission=0;
//Variables to contain boundary values, Art price and commission declared
if (price > upper) {commission = price*0.125;}
else if (price < low) {commission= ArtPrice.value*0.05;}
else {commission= price*0.1;}
//comparison of values to calculate the commission
document.getElementById("display here").innerHTML = "Commission for a sale of £"+price+" will be £"+commission
// Commission displayed at placeholder
}
</SCRIPT>

</body>
</html>
```

<SCRIPT> Tag inserted	1
</SCRIPT> Tag paired correctly	1
<SCRIPT> Tags wholly within <head> or <body>	1

Function inserted named “Calculate” or similar	1
LowerRange id referenced in code	1
UpperRange id referenced in code	1
ArtPrice id referenced in code	1
if – else if used (efficient method)	1
Display placeholder(s) inserted id="any" under button	1
// syntax used for comments inserted	1

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